

Patent Claims

1. Transdermal delivery system (TDS) having

- a carrier layer (cover layer) impermeable to the substances/active ingredients to be delivered,
- a membrane permeable to the substances/active ingredients to be delivered,
- a reservoir containing substances/active ingredients to be delivered, the reservoir being provided between the carrier layer and the membrane, and
- a removable film, wherein

the carrier layer and the membrane comprise electrodes such that the electrode(s) of the membrane serve(s) as counterelectrode(s) to the electrode (the electrodes) of the carrier layer.

2. Delivery system according to claim 1, characterised in that the electrodes of the carrier layer are arranged in the form of one or more electrode network(s) on the carrier layer, each electrode network having a plurality of individual electrodes, and the membrane comprises the counterelectrodes.

3. Delivery system according to claim 1 or claim 2, characterised in that it comprises

- (a) a battery,
- (b) a microchip that (i) is fixed to the carrier layer or (ii) is accommodated with the battery in an external housing and is connected to the electrodes of the electrode networks of the carrier layer and of the membrane by means of flexible wiring systems, and
- (c) a reading and writing device for writing to the microchip.

4. Delivery system according to any one of the preceding claims, characterised by a carrier layer having a thickness in the range from 10 to 1000  $\mu\text{m}$ .
5. Delivery system according to any one of the preceding claims, characterised in that the substance/active ingredient reservoir is formed by a contact adhesive, a gel or an immobilised solution for the substance/the active ingredient.
6. Delivery system according to any one of the preceding claims, characterised in that the electrode network(s) of the carrier layer and/or of the membrane has/have been applied by printing.
7. Delivery system according to any one of the preceding claims, characterised in that, where there is a plurality of electrode networks, each electrode network is actuatable individually or a plurality of electrode networks are actuatable in groups and/or each individual electrode in a network is actuatable individually or a plurality of individual electrodes in a network are actuatable in groups.
8. Delivery system according to any one of the preceding claims, characterised in that the electrically conductive membrane permeable to a substance/an active ingredient is a metal lattice, or a polymer lattice on which a conductive layer has been vapour-deposited, or a perforated conductive layer.
9. Delivery system according to any one of the preceding claims, characterised in that the electrically conductive membrane permeable to a substance/an active ingredient has uninterrupted conductivity or has conductive areas that are separated by non-conductive areas, so that one or more networks of conductive areas are formed.
10. Delivery system according to claim 9, characterised in that each electrode of the carrier layer corresponds to a counterelectrode with which it is uniquely associated.

11. Delivery system according to any one of the preceding claims, characterised in that the microchip is securely bonded to the carrier layer.

12. Delivery system according to any one of the preceding claims, characterised in that the microchip is a chip that is programmable according to a prescription.

13. Delivery system according to any one of the preceding claims, characterised in that the battery is a button battery or sheet battery.

14. Delivery system according to any one of the preceding claims, characterised in that the battery is provided in a pocket in the carrier layer.

15. Delivery system according to any one of the preceding claims, characterised in that there is applied to the side of the membrane remote from the substance/active ingredient reservoir a layer consisting of a pressure-sensitive contact adhesive for attaching the delivery system to the skin and for improving contact with the skin.